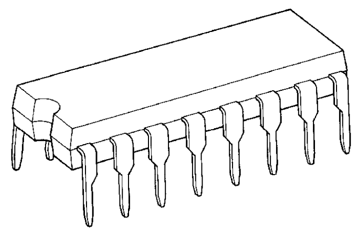
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62064BP-1, TD62064BF

4ch HIGH-CURRENT DARLINGTON SINK DRIVER

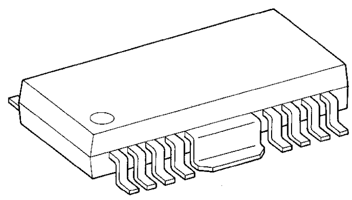
The TD62064BP-1 and TD62064BF are high-voltage, high-current darlington drivers comprised of four NPN darlington pairs.
All units feature integral clamp diodes for switching inductive loads.
Applications include relay, hammer, lamp and stepping motor drivers.

TD62064BP-1



DIP16-P-300-2.54A

TD62064BF



HSOP16-P-300-1.00

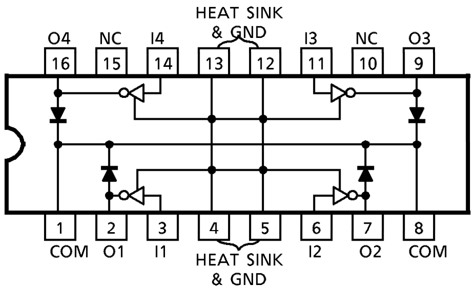
Weight
DIP16-P-300-2.54A : 1.11g (Typ.)
HSOP16-P-300-1.00 : 0.50g (Typ.)

FEATURES

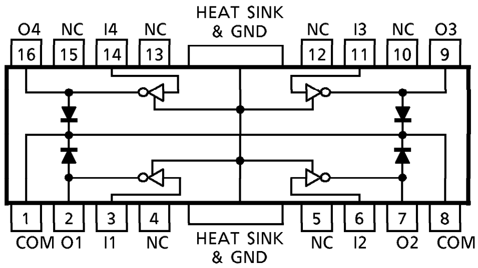
- Package Type BP-1 : DIP16 pin
  BF : PFP16 pin
- High Output Sustaining Voltage : $V_{CE(SUS)} = 80V$ (Min.)
- Output Current (Single Output) : $I_{OUT} = 1.5A$ / ch (Max.)
- Output Clamp Diodes
- Input Compatible with TTL and 5V CMOS
- GND and SUB Terminal = Heat Sink

PIN CONNECTION (TOP VIEW)

TD62064BP-1

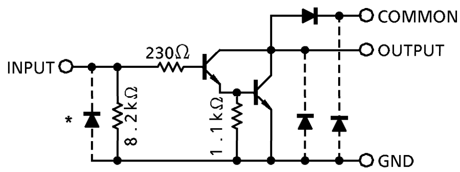


TD62064BF



SCHEMATICS (EACH DRIVER)

TD62064BP-1 / BF



* : Parasitic

The input and output parasitic diodes cannot be used as clamp diodes.

961001EBA2

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Output Sustaining Voltage		$V_{CE(SUS)}$	−0.5 ~ 80	V
Parasitic Transistor Output Voltage		V_{CEF} *1	80	V
Output Current		I_{OUT}	1.5	A / ch
Input Current		I_{IN}	50	mA
Input Voltage		V_{IN}	7	V
Clamp Diode Reverse Voltage		V_R	80	V
Clamp Diode Forward Current		I_F	1.5	A
Power Dissipation	BP-1	P_D	1.47 / 2.7 *2	W
	BF		0.9 / 1.4 *3	
Operating Temperature		T_{opr}	−40 ~ 85	°C
Storage Temperature		T_{stg}	−55 ~ 150	°C

*1 Parasitic Transistor (COMMON - GND - OUTPUT) Output Voltage
*2 On Glass Epoxy PCB (50 × 50 × 1.6mm Cu 50%)
*3 On Glass Epoxy PCB (60 × 30 × 1.6mm Cu 30%)

RECOMMENDED OPERATING CONDITIONS (Ta = −40~85°C)

CHARACTERISTIC		SYMBOL	CONDITION		MIN.	TYP.	MAX.	UNIT
Output Sustaining Voltage		$V_{CE(SUS)}$			0	—	80	V
Output Current		I_{OUT}	DC 1 Circuit, Ta = 25°C		0	—	1250	mA / ch
	BP-1 *1		T_{pw} = 25ms 4 Circuits	Duty = 10%	0	—	1250	
				Duty = 50%	0	—	380	
	BF *2		T_j = 120°C Ta = 85°C	Duty = 10%	0	—	900	
				Duty = 50%	0	—	170	
Input Voltage		V_{IN}			0	—	5.5	V
	(Output On)	$V_{IN(ON)}$	I_{OUT} = 1.25A		2.5	—	8	V
	(Output Off)	$V_{IN(OFF)}$			0	—	0.4	V
Input Current		I_{IN}			0	—	20	mA
Clamp Diode Reverse Voltage		V_R			0	—	80	V
Clamp Diode Forward Current		I_F			—	—	1.25	A
Power Dissipation	BP-1	P_D	Ta = 85°C *1		—	—	1.4	W
	BF		Ta = 85°C *2		—	—	0.7	

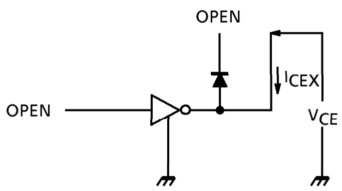
*1 On Glass Epoxy PCB (50 × 50 × 1.6mm Cu 50%)
*2 On Glass Epoxy PCB (60 × 30 × 1.6mm Cu 30%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C unless otherwise noted)

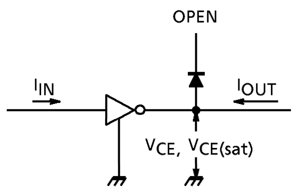
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current	I_{CEX}	1	V_{CE} = 80V, Ta = 25°C	—	—	50	μA
			V_{CE} = 80V, Ta = 85°C	—	—	100	
Output Saturation Voltage	$V_{CE(sat)}$	2	I_{OUT} = 1.25A, V_{IN} = 2.4V	—	—	1.6	V
			I_{OUT} = 0.75A, V_{IN} = 2.4V	—	—	1.25	
DC Current Transfer Ratio	h_{FE}	2	V_{CE} = 2V, I_{OUT} = 1.25A	—	1500	—	
Input Voltage (Output On)	$V_{IN\ (ON)}$	3	I_{OUT} = 1.25A, I_{IN} = 2mA	—	—	2.4	V
Clamp Diode Leakage Current	I_R	4	V_R = 80V, Ta = 25°C	—	—	50	μA
			V_R = 80V, Ta = 85°C	—	—	100	
Clamp Diode Forward Voltage	V_F	5	I_F = 1.25A	—	1.5	2.0	V
Input Capacitance	C_{IN}	6	V_{IN} = 0, f = 1MHz	—	15	—	pF
Turn-On Delay	t_{ON}	7	V_{OUT} = 80V, R_L = 68Ω	—	0.1	—	μs
Turn-Off Delay	t_{OFF}			—	1.0	—	
Parasitic Transistor Output Voltage	V_{CEF}	8	I_{CEF} = 150mA	80	—	—	V

TEST CIRCUIT

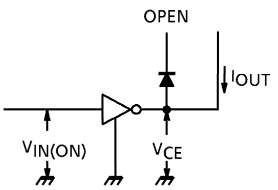
1. I_{CEX}



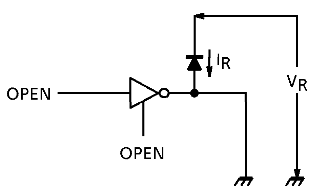
2. $V_{CE(sat)}$、h_{FE}



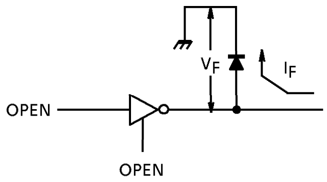
3. $V_{IN(ON)}$



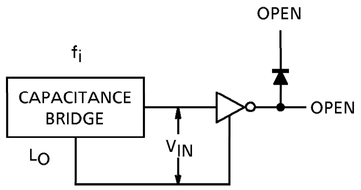
4. I_R



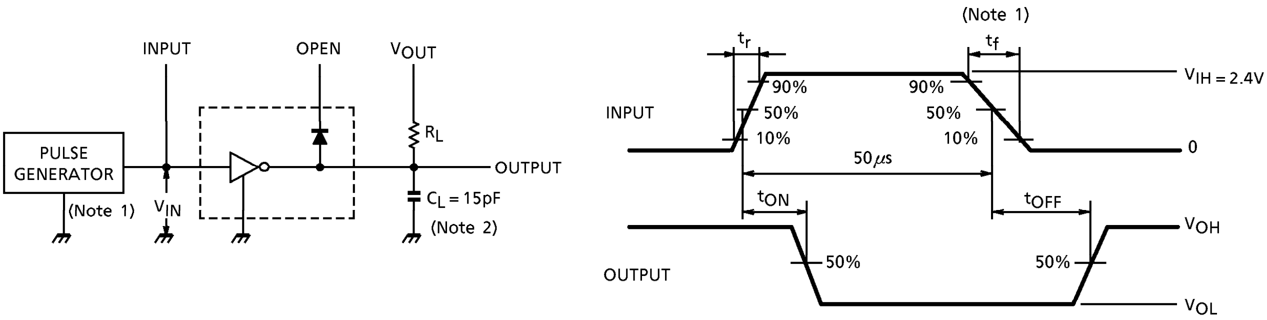
5. V_F



6. C_{IN}



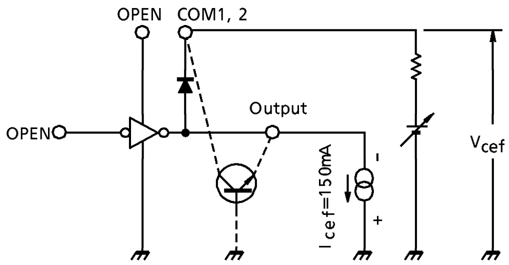
7. t_{ON}, t_{OFF}



(Note 1) Pulse Width 50μs, Duty Cycle 10%
Output Impedance 50Ω, $t_r \leqq$ 5ns, $t_f \leqq$ 10ns

(Note 2) C_L includes probe and jig capacitance

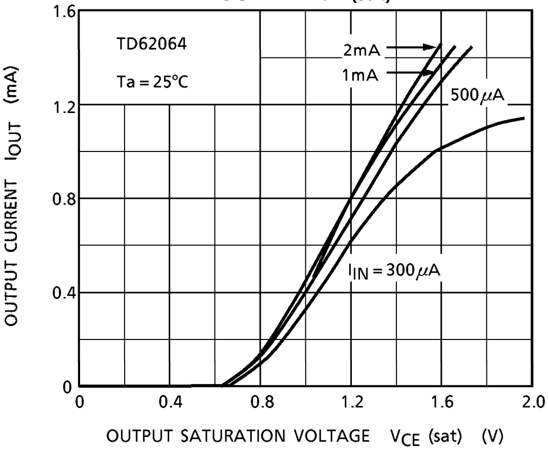
8. V_{cef}



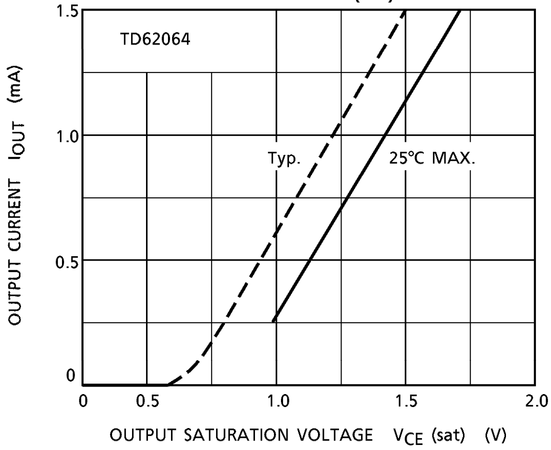
PRECAUTIONS for USING

Utmost care is necessary in the design of the output line, COMMON and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

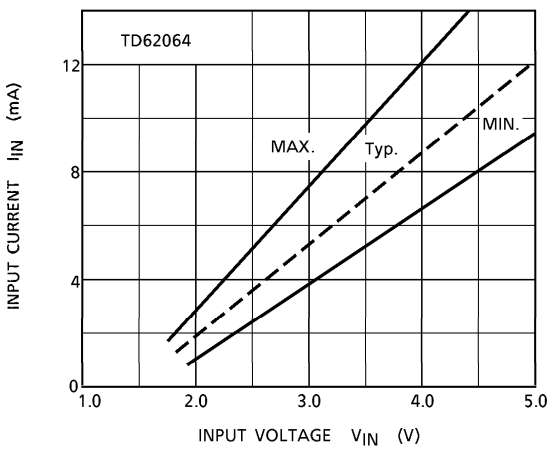
I_{OUT} – V_{CE} (sat)



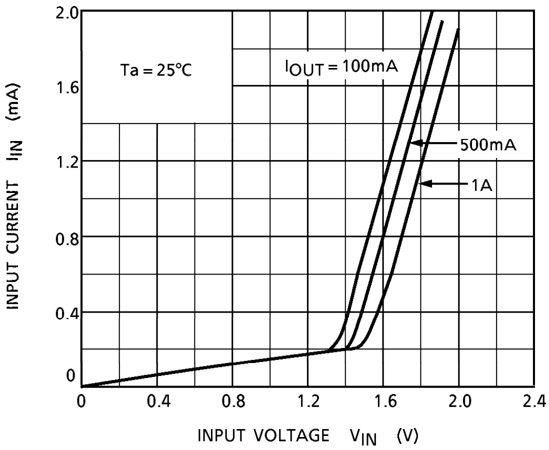
I_{OUT} – V_{CE} (sat)



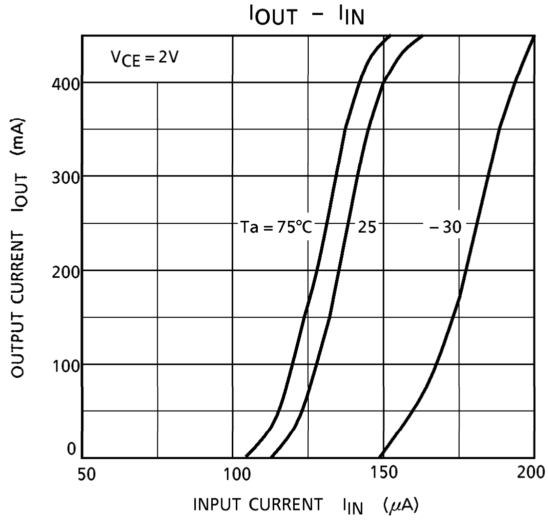
I_{IN} – V_{IN}



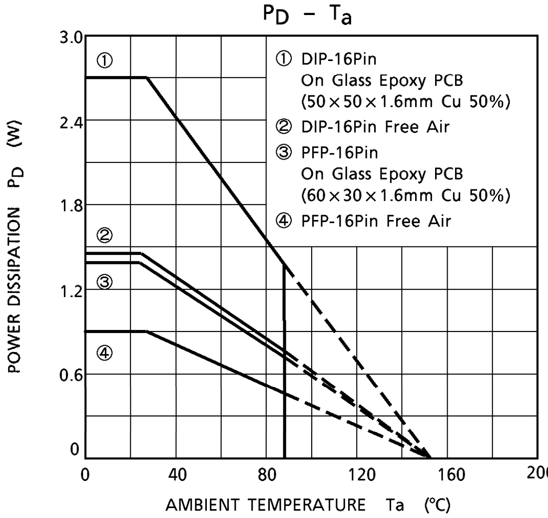
I_{IN} – V_{IN}

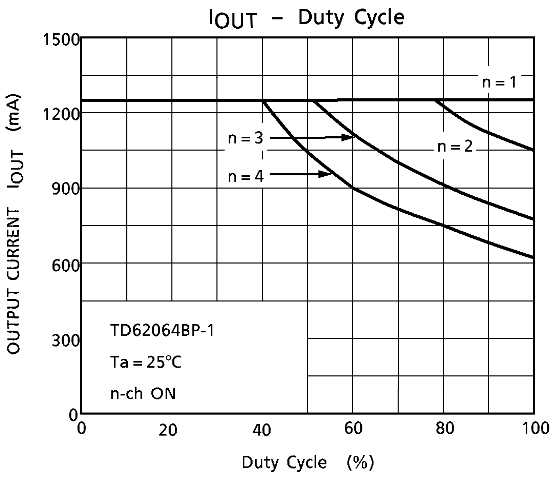


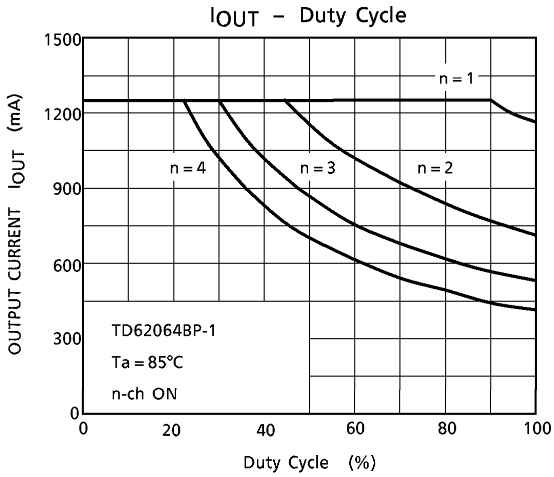
I_{OUT} – I_{IN}

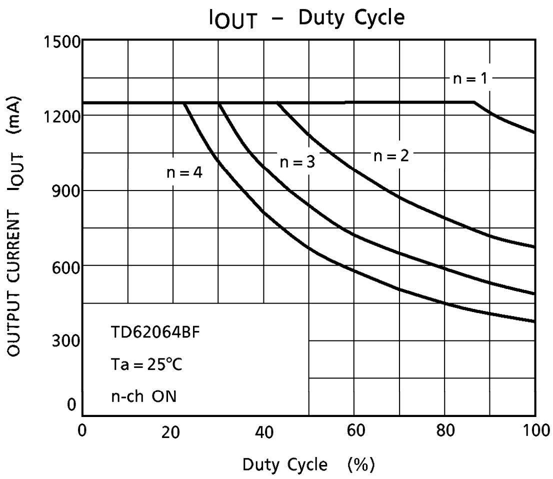


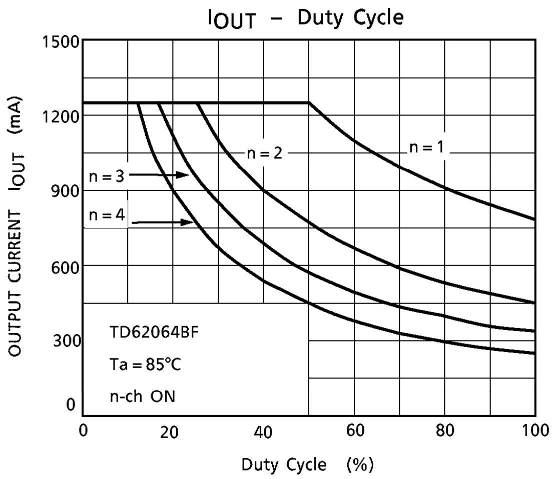
P_D – T_a




IOUT – Duty Cycle
OUTPUT CURRENT IOUT (mA)
Duty Cycle (%)
n = 1
n = 2
n = 3
n = 4
TD62064BP-1
Ta = 25°C
n-ch ON

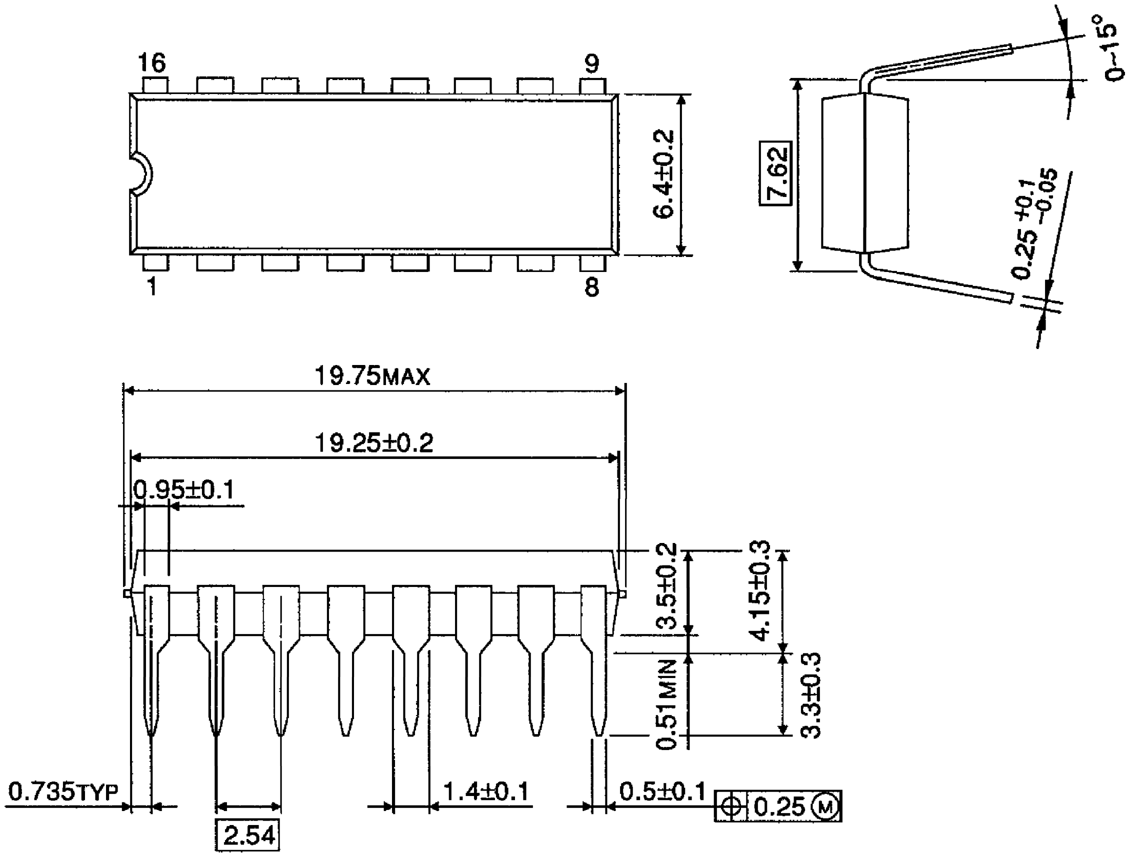

IOUT – Duty Cycle
OUTPUT CURRENT IOUT (mA)
Duty Cycle (%)
n = 1
n = 2
n = 3
n = 4
TD62064BP-1
Ta = 85°C
n-ch ON


IOUT – Duty Cycle
OUTPUT CURRENT IOUT (mA)
Duty Cycle (%)
n = 1
n = 2
n = 3
n = 4
TD62064BF
Ta = 25°C
n-ch ON


IOUT – Duty Cycle
OUTPUT CURRENT IOUT (mA)
Duty Cycle (%)
n = 1
n = 2
n = 3
n = 4
TD62064BF
Ta = 85°C
n-ch ON

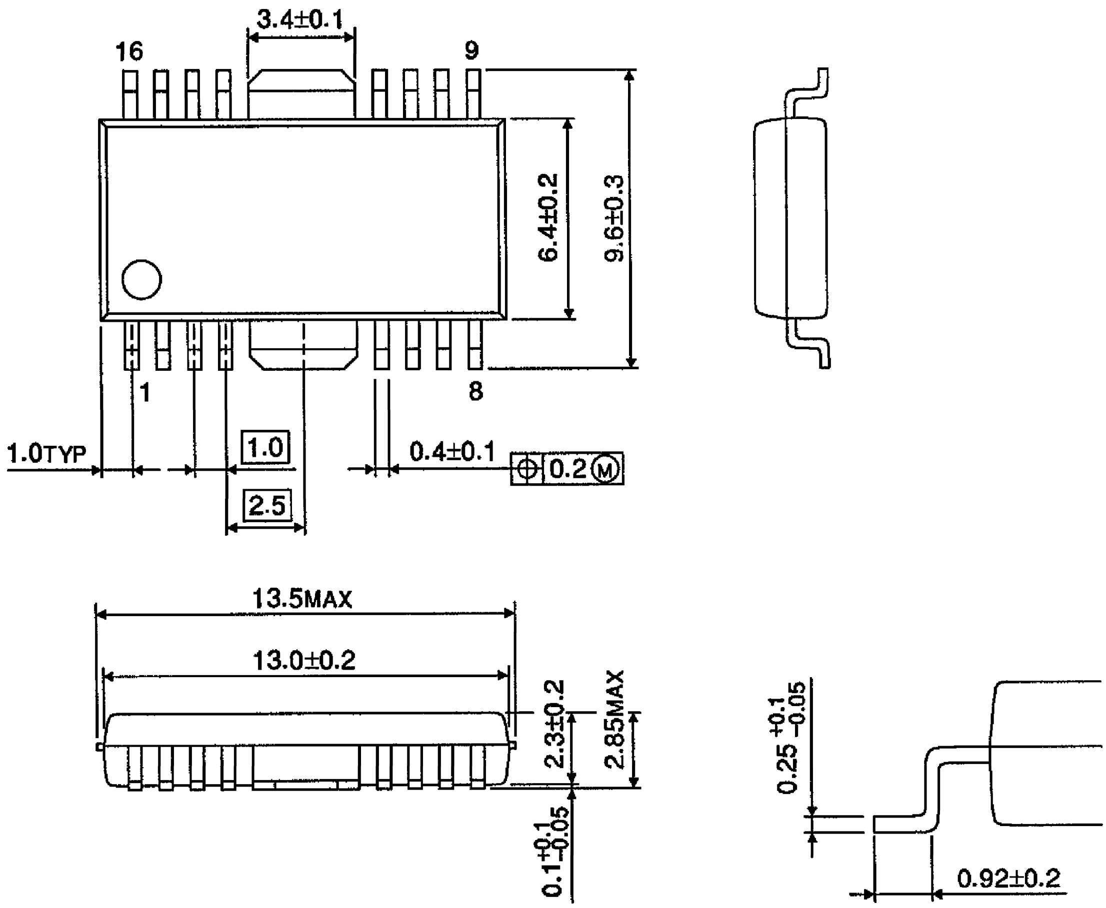
OUTLINE DRAWING

DIP16-P-300-2.54A Unit : mm



Weight : 1.11g (Typ.)

OUTLINE DRAWING
HSOP16-P-300-1.00 Unit : mm



Weight : 0.50g (Typ.)